

CLAIMS

- 5 1. An apparatus for winding a web, comprising:
an upstream end;
a downstream end;

10 a first set of belts, traveling within a first plane in a first direction
from the upstream end to the downstream end; the belts spaced apart within
the first plane; and

15 a second set of belts, traveling within a second plane in a
second direction from the downstream end toward the upstream end; the belts
spaced apart within the second plane;

20 the first and second sets of belts in close proximity at the
upstream end and spaced apart at the downstream end;

25 wherein a web, in contact with the first set of belts, traveling in
the first direction, and comprising a cigarette comprising a leading edge of the
web, is wound around the cigarette by contact with the second set of belts at
the upstream end.

3. The apparatus of claim 1, wherein the first set of belts travels at
a first speed, and the second set of belts travels at a second speed lower than
the first speed.

20 3. The apparatus of claim 1, wherein the belts of the first set of
belts are in alignment with the belts of the second set of belts;

25 the apparatus further comprising a third set of belts positioned
between the belts of the first set of belts and in the first plane; the third set of
belts traveling in the first direction; the third set of belts comprising a lug on
each belt, the lugs oriented along a common line; wherein contact of the lugs
with the leading edge of the web forms the cigarette.

4. The apparatus of claim 3, wherein contact of the lugs with the
web separates the web into a downstream portion and an upstream portion;
the upstream portion comprising the leading edge.

5. The apparatus of claim 1, wherein the belts of the first set of belts are in alignment with the space between the belts of the second set of belts;

the apparatus further comprising a first set of skatewheels positioned between the belts of the first set of belts; and

a second set of skatewheels positioned between the belts of the second set of belts, and positioned downstream from the first set of skatewheels;

wherein the first set of skatewheels pins the web against the second set of belts, and the second set of skatewheels pins the web against the first set of belts; the skatewheels cooperating to separate the web into a downstream portion and an upstream portion; the upstream portion comprising the leading edge, and the first set of skatewheels forming the cigarette.

10 15 20 25
6. The apparatus of claim 1, wherein the web comprises a liquid add-on of at least about 25%.

7. The apparatus of claim 1, wherein the web comprises a liquid add-on of about 25% to about 700%.

8. The apparatus of claim 1, wherein the web is hydrophobic.

9. The apparatus of claim 1, further comprising:

a fourth set of belts comprising belts spaced apart within a fourth plane and traveling in the first direction; and

a fifth set of belts comprising belts spaced apart within a fifth plane parallel to the fourth plane and traveling in the first direction; the belts of the fifth set of belts in alignment with the belts of the fourth set of belts;

the fourth and fifth sets of belts delivering the web to the first set of belts.

10. The apparatus of claim 9, further comprising:
a sixth set of belts comprising belts positioned between the belts
of the fourth set of belts and moving from a position behind the fourth plane to
a position beyond the fourth plane; and

5 a plurality of surfaces positioned between the belts of the fifth
set of belts;

the motion of the sixth set of belts to the position beyond the
fourth plane causing the web to be pinned between the surfaces and the sixth
set of belts and separating the sheet into an upstream portion and a
downstream portion.

10. A method of forming a coreless roll of product, comprising:

supporting a web on a first set of belts traveling in a first
direction from an upstream area to a downstream area;
forming a cigarette from the web;
contacting the cigarette with a second set of belts traveling in a
second direction from the downstream area toward the upstream area; and
winding the web around the cigarette.

15. The method of claim 11, further comprising breaking the web to
form an upstream portion of the web and a downstream portion of the web,
the upstream portion comprising a leading edge;

20 wherein the cigarette comprises the leading edge.

13. The method of claim 12, wherein the breaking the web and the
forming a cigarette from the web are simultaneous.

25. The method of claim 12, wherein the breaking the web is
followed by the forming a cigarette from the web.

15. The method of claim 12, wherein the breaking the web
comprises contacting the web with a plurality of lugs, the lugs attached to a
third set of belts positioned between the belts of the first set of belts.

16. The method of claim 12, wherein the breaking the web comprises simultaneously pinning the web between a first set of skatewheels and the second set of belts and pinning the web between a second set of skatewheels and the first set of belts.

5 17. The method of claim 11, wherein the first set of belts travels at a first speed, and the second set of belts travels at a second speed lower than the first speed.

18. The method of claim 11, wherein the web comprises a liquid add-on of at least 25%.

10 19. An apparatus for forming a coreless roll of product, comprising:
means for transporting the web from an upstream end of the apparatus to a downstream end of the apparatus;

15 means for separating the web into an upstream portion and a downstream portion, the upstream portion comprising a leading edge;

means for forming a cigarette comprising the leading edge;

means for rolling the cigarette onto the web;

means for winding the web around the cigarette to form a roll;

and

means for transporting the roll to the downstream end.

20 20. The apparatus of claim 19, wherein the web comprises a liquid add-on of at least 25%.